Exhibit 1

AVOCENT INSTALL AND DISCOVERY PROTOCOL SPECIFICATION

DOCUMENT #590064

VERSION: 1.1

JANUARY 16, 2002

Avocent Install Discovery Protocol

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Revision Chart

Version .	Palmany Archor(s)	Description of Version 1981	Date Completed
0.1	Jim Shelton Brian Stewart	Initial Draft	October 25, 2001
0.2	Jim Shelton	Fixed issues from first engineering review	October 25, 2001.
0.3	Jim Shelton	Fixed issues from second engineering review.	October 26, 2001
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1.0	Brian S. Stewart	Changed to Version 1.0 for signature: Added Approval section.	November 26, 2001
1.1 ****	Jim Shelton	Added final IANA approved port number	January 16, 2002
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1. OVERVIEW

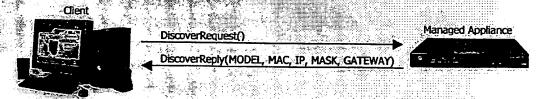
This document describes the Avocent Install and Discovery Protocol (AIDP). Avocent network client applications use this protocol to install and discover Avocent Managed Appliances (for example: CPS, DS1800, and DSR products). Discovery is the ability to locate managed appliances on the network. This includes appliances that do not have an IP address and appliances that do have an IP address. Install is the process of setting the IP configuration of an appliance that does not have an IP address over the network.

This protocol exchanges messages via the User Datagram Protocol (UDP) documented in RFC 768 using UDP port 3211. Appliances must listen for UDP messages on this port. The AIDP protocol uses the same port number as the Avocent Secure Management Protocol (ASMP). However, the AIDP protocol is over UDP, whereas the ASMP protocol is over TCP.

The AIDP protocol also provides a few SNMP commands that allow a client to access certain MIB (Management Information Base) objects in the appliance. A MIB is a set of managed objects that define what data can be obtained from an appliance. In order to support the SNMP commands, a managed appliance must implement an SNMP agent and an enterprise MIB. When using the AIDP protocol only certain OIDs may be retrieved from the appliance. The OIDs defined in the enterprise MIB that are marked with "Discover" in the AVAILABILITY keyword may be retrieved. In addition to these specific enterprise MIB OIDs, the MIB-II OIDs sysName and sysObjectID can be retrieved from the appliance. No other OIDs are accessible through the AIDP protocol. Please refer to the managed appliance's enterprise MIB for which OIDs are marked with the "Discover" valueWhen using the AIDP protocol only certain OIDs may be retrieved from the appliance. The OIDs defined in the enterprise MIB that are marked with "Discover" in the AVAILABILITY keyword may be retrieved. In addition to these specific enterprise MIB OIDs, the MIB-II OIDs sysName and sysObjectID can be retrieved from the appliance. No other OIDs are accessible through the AIDP protocol. Please refer to the managed appliance's enterprise MIB for which OIDs are marked with the "Discover" value When using the AIDP protocol only certain OIDs may be retrieved from the appliance. The OIDs defined in the enterprise MIB that are marked with "Discover" in the AVAILABILITY keyword may be retrieved. In addition to these specific enterprise MIB OIDs, the MIB-II OIDs sysName and sysObjectID can be retrieved from the appliance. No other OIDs are accessible through the AIDP protocol. Please refer to the managed appliance's enterprise MIB for which OIDs are marked with the "Discover" value.

1.1 Discovery

Discovery is accomplished when the client sends a UDP broadcast to the subnet containing the appliances. All appliances on the subnet must report their IP configuration information back to the client. Even appliances that do not have an IP address must report their Model and MAC address back to the client.



This requires that appliances that do not have an IP address be able to listen for Ethernet packets even when no IP address has been assigned to the appliance. They also must be able to create an IP/UDP reply packet when they do not have an IP address. This Discover Reply packet should fill in the following fields as indicated below if it does not have an IP address.

Ethernet source address = MAC address of the appliance

Ethernet destination address = Ethernet source address from Discover Request message

IP source address = "12.3.4"

IP destination address = IP source address from Discover Request message

UDP Discover Reply MAC = MAC address of the appliance

UDP Discover Reply IP = "0.0.0.0" UDP Discover Reply Mask = "0.0.0.0" UDP Discover Reply Gateway = "0.0.0.0"

Note: For details see the protocol section that follows

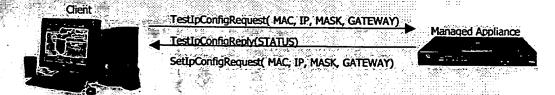
Note: If an appliance already has an IP address assigned, the client can send the discover message directly to the IP address of the appliance. It does not need to send a broadcast.

Note: When operating across routers, UDP subnet broadcast must be enabled in the router for UDP port 3211.

1.2 Installation

Installation allows the client to remotely set the IP configuration of appliances that do not have an IP address. This configuration information includes the IP address, subnet mask and gateway for the managed appliance. This is a two-step process. Step 1 requires that the new configuration be tested and Step 2 installs the final IP address. Testing is required so that the appliance does not get configured with an invalid gateway or subnet mask:

During Step 1 the client sends a UPD broadcast containing the MAC address, IP address, subnet mask and gateway to the appliance. Only the appliance with the specified MAC address should reply to this request. If the reply is received, then Step 2 is performed. Step 2 permanently sets the IP configuration into the appliance.



SetipConfigReply(STATUS)

Upon receipt of a Test IP Configuration Request, an appliance with no IP address should temporarily set its. IP configuration to the values received in the request. The appliance should then use the normal IP/UDP stack to send the Test IP Configuration Reply message so that the normal flow of messages is tested (subnet mask, ARP, etc). If an invalid gateway or subnet mask was specified in Step 1, the Test IP Configuration Reply message will not get returned to the client. Therefore the client will not send a Set IP Configuration Request and the appliance IP configuration information will not be permanently set. Only upon receiving the Set IP Configuration message should the appliance permanently set the IP configuration information.

2. PROTOCOL

2.1 AIDP Message

The AIDP Message is made up of a series of bytes. These bytes contain three distinct parts (Header, Record Data, and Trailer) as indicated below.

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2.1.1 Header

The AIDP Header consists of the following fields:

Field Name	Length	1. 22 · 18 · 14 · 18 ·	Description	5 2 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SOH	1	The start flag marking the Heading (0x01).	beginning of a me	essage. Start of
Signature	4	Unique Signature ID indicating that this is an Avocent Install Discovery Protocol message. This value will always be the ASCII representation of "AIDP".		
Sequence Number	2	Unique packet sequence number for ordering packets. This value increments for each packet sent. The value 0 is reserved for future use. This value is sent in Network Byte Order. Range is (1.65535).		
Command ID	1	Contains the unique code the message. The values use.		
now this de		Discover	0x01	0x81
		TestIpConfigRequest	0x02	0×82
		SetIpConfigRequest	0×03	0×83
* ****		SnmpGet	0x10	0x90
***************************************		SnmpGetNext	0x11	0x91
Record Length	4	The total number of bytes This value is sent in Netw 4294967295).		

2.1.2 Record Data

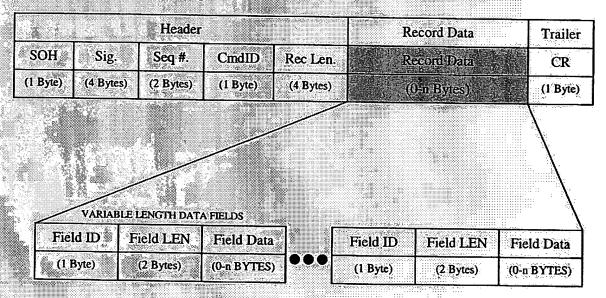
The Record Data portion is a variable length field containing the data to send. The data is encoded based upon the AIDP command request/reply ID. See the appropriate Commands section for the specific encoding rules for the different request types.

2.1.2.1 Variable Length Data Fields

Certain AIDP commands may contain variable length data fields encoded within the Record Data portion of the AIDP message. There can be more than one variable length data field in the Record Data portion. These variable length data fields will use the following extensible record format:

Field Name	Length	Description
Field ID		Contains a unique Field ID for this field within the record data. A Field ID with a value of 0xFF terminates the record data and is not followed by the remainder of this field.
Field Length	2	The total number of bytes in the Field Data that follows. This value is sent in Network Byte Order. Range is (065535).
Field Data	0-n	Contains the data for this field:

The following shows how the Variable Length Data Fields would appear in the Record Data portion of an AIDP message:

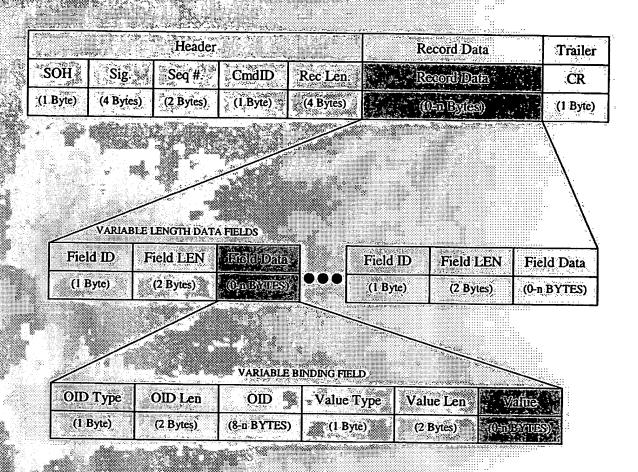


Note: The Variable Length Data Fields contained in the Record Data portion of the message may appear in any order, unless stated otherwise.

2.1.2.2 Variable Binding Fields

In some of the AIDP commands (specifically the Snmp commands), the Variable Length Data Fields of the Record Data may contain a Variable Binding Field. These Variable Binding Fields contain further encoding.

The following shows how the Variable Binding Field would appear in the Field Data sections of an AIDP message:



The Variable Binding Field encoding is described below:

100000	on the second	Serve Call Land Commission
Sub-Field Name	Leigth	Description
OID Type		Type indicating this is an OID. Value = 0x06 (ASN_OBJECTIDENTIFIER).
OID Length	2	Contains the number of bytes in the OID that follows. This value is sent in Network Byte Order.
OID Value	8-n	Contains the OID as an array of INTS (each INT being 4 Bytes). The minimum length is 8 because the smallest OID that can be used in a command is 2 integers (example: 0.0). In has to be a multiple of 4.
Value Type		Contains the type of the Variable Binding Value as follows: 0x02 = ASN_INTEGER 0x03 = ASN_BITS
	All the second	0x04 - ASN_OCTETSTRING 0x05 - ASN_NULL
		0x05 - ASN_NULL 0x06 - ASN_OBJECTIDENTIFIER 0x30 - ASN_SEQUENCE ASN_SEQUENCEOF

	2,388,84,000	
		ASN_IPADDRESS
	0x41 - 7	ASN_COUNTER32
	0x42 = v	ASN_GAUGE32
	0x43 = 2	ASN <u>TIMETICKS</u>
	0x44 - 1	ASN_OPAQUE
	0x46 - 7	ASN_COUNTER64
		ASN_UNSIGNED32
Value Length		1
Agine religii	Contains t	he length of the Variable Binding Value that
	tollows: T	his value is sent in Network Byte Order.
Value ***	0-n Contains th	e Variable Binding Value. See below for how the
	value is end	
a common territorial de la la common de la common del common de la common del common del common de la common de la common del common de la common de	CONSCISE AND THE PARTY OF THE P	The state of the s

The Value section of the Variable Binding field is encoded differently based upon the Value Type as listed below:

ASN_INTEGER (0x02)

Company.	Value Type	Value Len	Value 4:
**********	(1 Byte)	(2 Bytes)	(4 Bytes)

ASN_COUNTER32 (0x41), ASN_GUAGE32 (0x42), ASN_TIMETICKS (0x43)

	C		MET HORSE THE COLUMN TO THE CO	
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	mental to a second	(2 Bytes)	イエ DYにろ)	

ASN_COUNTER64 (0x46)

W	Value Type	Value Len	Value
-	(1 Byte)	(2 Bytes) 🔉	(8 Bytes)

ASN_OCTETSTRING (0x04), ASN_RFC1213_DISPSTRING

WaltieTtype	.Value ben		AValue ac 4 excusi	
(1 Byte)	(2 Rytes)		⊖n BYTES	
(1.2),(0)	(24),,	(1 Byte) (1 B	lyte) (1 Byte) (1 Byte	3]

ASN_OBJECTIDENTIFIER (0x06)

	Waite Itype	Valietian	Castalina (Castaline) Selice (Salata Control
	(1 Byte)	(2) Rytael	1 – n INT OID values
l		, (2 Dytes)	(4 Bytes) (4 Bytes) (4 Bytes) (4 Bytes)

ASN_NULL (0x05)

e,		<u> </u>
ी	7V/37=25 978	Value Len Value
3	ASTITIES ITABLES	Value teams to a value and
	(1 Byte)	(2 Bytes) (NO VALUE)
		1 (2 D) (CS) 1 (IVO VALUE)

2.1.3 Trailer

Every AIDP message ends with a Carriage Return (CR) byte (0x0D) to mark the end of a message

2.2 Commands

2.2.1 Discover

2.2.1.1 Request Message (0x01)

This message is sent from a Client to a Managed Appliance to request that the appliance report it's information (Model Type, MAC address, IP address, subnet mask, and gateway address).

	Field Name	Length	Description 4:
	SOH	1	Start of Heading: Value = 0x01.
<u>~</u>	Signature *	4	Unique Signature ID: Value = "AIDP".
ADER	Sequence Number	.2.	Unique packet sequence number.
HEA	Command ID	1 1	Unique code for the command contained in this message.
14			Value = 0x01 (Discover Request command)
	Record Length	4	The total number of bytes in the Record Data field that follows:
4 :			
ATA	Variable Length Data Fields. See below for description of the specific fields.		
I S		*******	
RECORD			
🏻	Field Terminator	**I	Terminates the record data. Value = 0xFF.
R	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		r a constant
R	CR	\} 1	End of message flag. Value = 0x0D.
MLER			A CONTRACT OF THE CONTRACT OF
Z.			
H			5

Note: There are no Variable Length Data Fields in a Discover Request Message. The Record Length value will always be 1 to account for the Field Terminator.

There are no Variable Length Data Fields in the Discover Request Message (0x01).

Upon receipt of the Discover Request Message, the managed appliance will generate a Discover Reply Message containing it's Model Type, MAC address, IP address, subnet mask, and gateway address.

2.2.1.2 Reply Message (0x81)

This message is sent from a Managed Appliance to a Client in response to a Discover Request message.

48	. DeldiName	Length	Description
****	SOH	1	Start of Heading. Value = 0x01.
***	Signature ID	₩ _4 % ;₩	Unique Signature ID. Value = "AIDP".
ADER	Sequence Number	*2*	Unique packet sequence number. This number must match the sequence number of the Discover Request message that this reply is for.
HE	Command ID	1	Unique code for the command contained in this message.
			Value = 0x81 (Discover Reply command)
11.0	Record Length.	4	The total number of bytes in the Record Data field that follows.
RECORD DATA	• Required Fields		Data Fields. See below for description of the specific fields. * Field ID 1 = Appliance Model Type Field * Field ID 2 = MAC Address Field * Field ID 3 = IP Address Field * Field ID 4 = Subnet Mask Field * Field ID 5 = Gateway Address Field
	Field Terminator	<u> </u>	Terminates the record data. Value=0xFF.
TRAILER	CR	1	End of message flag. Value = 0x0D.

The following describes the Variable Length Data Fields of a Discover Reply Message (0x81):

Appliance Model Type Field:

Name	Length	Description
Field ID	1.2	The Appliance Model Type Field ID. Value = 0x01.
Field Length	2 2 ·	The length of the Model Type Field Data field that follows. Value = 2. This value is sent in Network Byte Order.
Field Data	, 2 ,	Value indicating the appliance model type. This value is sent in Network Byte Order. The possible values are as follows:
*		0x0001 - Avocent CPS810
		0x0002 - Avocent CPS1610 0x0003 - Avocent DS1800
		0x0004 - Avocent DSR1161 0x0005 - Avocent DSR2161
		0x0006 - Avocent DSR4160
		0x0007 - Compaq DSR1161 0x0008 - Compaq DSR3161

Note: This field will always appear in the message.

MAC Address Field:

Name	Length	**Description ***
Field ID	1	The MAC Address Field ID. Value = 0x02.
Field Length	2	The length of the MAC Address Field Data field that follows: Value = 6: This value is sent in Network Byte Order.
Field Data	6	Value indicating the appliance's MAC address. This value is sent in Network Byte Order.

Note: This field will always appear in the message

IP Address Field:

Name	Length	Description Least the
Field ID	1	The IP Address Field ID. Value = 0x03.
Field Length	2	The length of the IP Address Field Data field that follows. Value = 4. This value is sent in Network Byte Order.
Field Data	4	Value indicating the appliance's IP address. This value is sent in Network Byte Order.
		If the appliance has not been assigned an IP address yet, it should respond with an IP address of 0.0.0.0 (0x00,0x00,0x00,0x00).

Note: This field will always appear in the message.

Subnet Mask Field:

Name	Length	Description .
Field ID	1	The Subnet Mask Field ID. Value = 0x04.
Field Length	2-	The length of the Subnet Mask Field Data that follows. Value = 4. This value is sent in Network Byte Order.
Field Data		Value indicating the appliance's subnet mask. This value is sent in Network Byte Order. If the appliance has not been assigned a subnet mask yet, it should respond with a value of 0.0.0.0 (0x00 0x00 0x00 0x00).

Note: This field will always appear in the message.

Gateway Address Field:

Name	Length	Description .
Field ID	1.	The Gateway Address Field ID. «Value = 0x05:
Field Length	2	The length of the Gateway Address Field Data that follows. Value = 4. This value is sent in Network Byte Order.
Field Data	4	Value indicating the appliance's gateway address. This value is sent in Network Byte Order. If the appliance has not been assigned a gateway address yet, it should respond with a value of 0.0.0.0 (0x00 0x00 0x00 0x00).

Note: This field will always appear in the message.

Note: The above Fields may appear in any order.

2.2.2 Test IP Configuration

2.2.2.1 Request Message (0x02)

This message is sent from a Client to a Managed Appliance to test if a given IP address and gateway address is valid for the appliance. It is used to determine if the appliance can route a message back to the client using the given IP and gateway addresses.

	- Main Mana	Length	Description
3.	SOH		Start of Heading: Value = 0x01:
8	Signature	4	Unique Signature ID. Value = "AIDP".
DE	Sequence Number	2,	Unique packet sequence number.
HEA	Command ID	1	Unique code for the command contained in this message. Value = 0x02 (Test IP Configuration Request command)
	Record Length	7.4 _{7.1}	The total number of bytes in the Record Data field that follows.
RECORD DATA	Variable Var	able Length)	Data Fields. See below for description of the specific fields: * Field ID 1 = MAC Address Field * Field ID 2 = IP Address Field * Field ID 3 = Subnet Mask Field * Field ID 4 = Gateway Address Field
	Field Terminator	1	Terminates the record data. Value = 0xFF.

CR 1 End of message flag Value = 0x0D	

The following describes the Variable Length Data Fields of a Test IP Configuration Request Message (0x02):

MAC Address Field:

Name	Length	Description
Field ID	1	The MAC Address Field ID: Value = 0x01.
Field Length	2	The length of the MAC Address Field Data field that follows.
Field Data	6	Value = 6. This value is sent in Network Byte Order. Value indicating the appliance's MAC address. This value is sent in
		Network Byte Order:

Note: This field will always appear in the message.

IP Address Field:

Name	Length	Description
Field ID	1	The IP Address Field ID. Value = 0x02.
Field Length	2	The length of the IP Address Field Data field that follows. Value = 4. This value is sent in Network Byte Order.
Field Data	4	Value indicating the appliance's IP address. This value is sent in Network Byte Order.

Note: This field will always appear in the message.

Subnet Mask Field:

() × ×	Name 11	Length	Description
	Field ID	1	The Subnet Mask Field ID. Value = 0x03.
	Field Length	2	The length of the Subnet Mask Field Data that follows.
1	7.7.9.7	7	Value = 4. This value is sent in Network Byte Order.
	Field Data	4	Value indicating the appliance's subnet mask. This value is sent in Network Byte Order.

-1			S	
	**************************************	8 38 8 808 8	Network Bute Order	1
			1 1000 000 000 000 000 000 000 000 000	ı
	Carlotte Comment	** \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		ı

Note: This field will always appear in the message

Gateway Address Field:

Name	Leigh	Description
Field ID	1, 1,	The Gateway Address Field ID. Value = 0x04.
Field Length		The length of the Gateway Address Field Data that follows.
Allett.		Value = 4. This value is sent in Network Byte Order.
Field Data	-4	Value indicating the appliance's gateway address. This value is sent in
	\$300 \$	Network Byte Order:

Note: This field will always appear in the message.

Note: The above Fields may appear in any order.

Upon receipt of the Test IP Configuration Request Message, the managed appliance will generate a Test IP Configuration Reply Message indicating the status of the request.

2.2.2.2 Reply Message (0x82)

This message is sent from a Managed Appliance to a Client to indicate the status of the Test IP Configuration Request message.

	Softed Names 2017	Length	Description (1997)
***	SOH	, 1 %	Start of Heading. Value = 0x01.
	Signature	4	Unique Signature ID: Value = "AIDP":
ADER	Sequence Number	2	Unique packet sequence number. This number must match the sequence number of the Test IP Configuration Request message that this reply is for.
里	Command ID	1	Unique code for the command contained in this message. Value = 0x82 (Test IP Configuration Reply command)
	Record Length	4	The total number of bytes in the Record Data field that follows.
RECORD DATA	• Required Fields	able Length	Data Fields. See below for description of the specific fields. * Field ID 1 = Status Field
R	Field Terminator	1	Terminates the record data. Value = 0xFF.

End.of message riag. Value = 0x0D		CR 1 End of message flag. Value = 0x0D	
-----------------------------------	--	--	--

The following describes the Variable Length Data Fields of a Test IP Configuration Reply Message (0x82):

Status Field:

Name Length	Description (
Field ID 1	The Status Field ID. Value = 0x01?
	The length of the Status Data field that follows: Value = 2. This value is sent in Network Byte Order.
Field Data 2	Value indicating the status of the request. This value is sent in Network Byte Order. See status codes below for possible values.

Note: This field will always appear in the message.

Status codes:

Deform the same of	Description ()
	Success, No error occurred.
& IP ADDRESS_ALREADY EXISTS ®	The appliance already has an IP address.
	An invalid request was sent to the appliance.
	The appliance was unable to process the request do to an
Δ	internal error. (For example: Out of memory, Not enough
	resources).

Please refer to section 2.2.6 Status Codes for a list of the status code values.

2.2.3 Set IP Configuration

2.2.3.1 Request Message (0x03)

This message is sent from a Client to a Managed Appliance to assign an IP address, subnet mask, and gateway address to the appliance.

	Field Name	Length	Description
***	SOH	1 1	Start of Heading. Value = 0x01.
ر ا	Signature	4	Unique Signature ID. Value = "AIDP",
ADER	Sequence Number	2	Unique packet sequence number.
HEA	Command ID	1	Unique code for the command contained in this message.
Ц	,		Value = 0x03 (Set IP Configuration Request command)
	Record Length	4	The total number of bytes in the Record Data field that follows.
RECORD DATA	* Required Fields		Data Fields. See below for description of the specific fields. * Field ID 1 = MAC Address Field * Field ID 2 = IP Address Field * Field ID 3 = Subnet Mask Field * Field ID 4 = Gateway Address Field
	Field Terminator	1	Terminates the record data Value = 0xFF.
TRALER	CR .	1	End of message flag. Value = 0x0D.

The following describes the Variable Length Data Fields of a Set IP Configuration Request Message (0x03):

MAC Address Field:

Name Length:	Description.
Field ID	The MAC Address Field ID. Value = 0x01.
Field Length 2	The length of the MAC Address Field Data field that follows.
	Value = 6. This value is sent in Network Byte Order.
Field Data 6	Value indicating the appliance's MAC address. This value is sent in Network Byte Order.

Note: This field will always appear in the message.

IP Address Field:

Name	Length	Description 1
Field ID	1.	The IP Address Field ID. Value = 0x02:
Field Length,	The contract of the contract o	The length of the IP Address Field Data field that follows.
18.5	CANALAN AND AND AND AND AND AND AND AND AND A	Value = 4. This value is sent in Network Byte Order.
Field Data	4	Value indicating the appliance's IP address. This value is sent in Network Byte Order.

Note: This field will always appear in the message.

Subnet Mask Field:

Name	Length	Description
Field ID	1	The Subnet Mask Field ID. Value = 0x03:
Field Length	300000000000000000000000000000000000000	The length of the Subnet Mask Field Data that follows: Value = 4. This value is sent in Network Byte Order.
Field Data	4	Value indicating the appliance's subnet mask. This value is sent in Network Byte Order.

Note: This field will always appear in the message.

Gateway Address Field:

Name	Length	Description:
Field ID	1	The Gateway Address Field ID. Value = 0x04.
Field Length	2	The length of the Gateway Address Field Data that follows. Value = 4. This value is sent in Network Byte Order.
Field Data	4	Value indicating the appliance's gateway address. This value is sent in Network Byte Order.

Note: This field will always appear in the message

Note: The above Fields may appear in any order.

Upon receipt of the Set IP Configuration Request Message, the managed appliance will generate a Set IP Configuration Reply Message indicating the status of the request.

2.2.3.2 Reply Message (0x83)

This message is sent from a Managed Appliance to a Client to indicate the status of the Set IP Configuration Request message.

14	Weld Name	Length .	Description is 1
	SOH	al ·	Start of Heading. Value = 0x01:
	Signature	4	Unique Signature ID. Value = "AIDP";
ADER	Sequence Number	2,	Unique packet sequence number. This number must match the sequence number of the Set IP Configuration Request message that this reply is for.
HE	Command ID	1	Unique code for the command contained in this message.
			Value = 0x83 (Set IP Configuration Reply command)
88	Record Length	.	The total number of bytes in the Record Data field that follows.
RECORD DATA	* Required Fields	ble Length]	Data Fields. See below for description of the specific fields. * Field ID:1 = Status Field ;
2	Field Terminator	* l *	Terminates the record data. Value = 0xFF.
TRAILER.	CR	1	End of message flag. Value = 0x0D.

The following describes the Variable Length Data Fields of a Set IP Configuration Reply Message (0x83):

Status Field:

Name	Length	Description
Field ID	1.	The Status Field ID. Value = 0x01.
Field Length	2	The length of the Status Data field that follows: Value = 2. This value is sent in Network Byte Order.
Field Data	2	Value indicating the status of the request. This value is sent in Network Byte Order. See status codes below for possible values.

Note: This field will always appear in the message.

Status codes

á.		Description Description
	NOERROR	Success, No error occurred.
-:		The appliance already has an IP address.
1	INVALID_REQUEST	An invalid request was sent to the appliance.
	APPLIANCE_ERROR	The appliance was unable to process the request do to an
		internal error. (For example: Out of memory, Not enough resources).
83		

Please refer to section 2.2.6 Status Codes for a list of the status code values.

2.2.4 Snmp Get

2.2.4.1 Request Message (0x10)

This message is sent from a Client to a Managed Appliance to retrieve the value for an OID from the managed appliance.

*	MilieldUName 14 v	dength:	Description 4
	SOH	1, 1,	Start of Heading. Value = 0x01.
2	Signature	4	Unique Signature ID. Value = "AIDP".
胃	Sequence Number	% , 2 %	Unique packet sequence number:
HEADER	Command ID	1	Unique code for the command contained in this message. Value = 0x10 (Snmp Get Request command)
, %	Record Length	4 %	The total number of bytes in the Record Data field that follows.
RECORD DATA	Varial * Required Fields "."	ble Length	Data Fields. See below for description of the specific fields. *Field ID 1 = Variable Binding Field
REC	Field Terminator	1,	Terminates the record data. Value = 0xFF.
TRAILER	CR		End of message flag. Value = 0x0D.

The following describes the Variable Length Data Fields of an Sump Get Request Message (0x10). The variable binding contains the OID that the client wants to get the value for from the appliance. Please refer to section 2.1.2.2 Variable Binding Fields to see how Variable Bindings are encoded.

Variable Binding Field:

X		Name	Length	Description
Fie	eld I	D	30212	The Variable Binding Field ID. Value = 0x01
Fie	Field Length		2	The total number of bytes in the Variable Binding Field that follows. This value is sent in Network Byte Order.
	OID to Get	OID Type	Ì	Type indicating this is an OID. Value = 0x06 (ASN_OBJECTIDENTIFIER).
		OID Len	2	The length of the OID to get. This value is sent in Network Byte Order.
)ata		OID 💥 🕷	₩ 8-n €	The OID to get the value for:
Field I	OIC.	Value Type	1	The type of the Value. Should always be set to 0x05 (ASN_NULL) for an Snmp Get Request Message.
	lue of (Value Len	≈ :2	Length of the Value. Should always be set to 0x0000 for an Snmp Get Request Message. This value is sent in Network Byte Order.
	[∞] Val	Value	0	Value for the OID. Should never be a value for this field in an Snmp Get Request Message.
ginn Xmin	**************************************	NOT THE REPORT OF THE PARTY OF	Service Control of the Control of th	TOWNS OF THE PARTY

Note: There may be multiple Variable Binding Fields in an Snmp Get Request Message.

Note: When using the AIDP protocol only certain OIDs may be retrieved from the appliance. The OIDs defined in the enterprise MIB that are marked with "Discover" in the AVAILABILITY keyword may be retrieved. In addition to these specific enterprise MIB OIDs, the MIB-II OIDs sysName and sysObjectID can be retrieved from the appliance. No other OIDs are accessible through the AIDP protocol. Please refer to the managed appliance, senterprise MIB for which OIDs are marked with the "Discover" value.

Upon receipt of the Snmp Get Request Message, the managed appliance will get the values for the OIDs specified in the variable binding values. It will then generate an Snmp Get Reply message to the client. The message will contain the status of the request and the values for the OIDs if the request was successful

The following is an example of an Snmp Get Request Message (0x10) for the MIB-II sysName OID (1.3.6.1.2.1.1.5) %

	ARMER (CLASSE) 10	Headei 1845	19.	A STATE OF THE STA	Description	Napolar a com	
	SOH Sig:	SEQ Cmd	Rec. Len 👑		Variable	dio	OID
Š	. Land Control of the	*~# ID		Binding ID	Binding Len	Туре	Len
	1 "AIDP"	.1. 46	¥1		42	7-1-1-1-1 X	
	01 41.53 4D 50	00 01 10	∗ ≋00 00 00 2E ∰	₩ ₩ 01 ₩	00 2A	.06	00 24

	Record Data (Cont.)
	OD Value
Ç.	136121150
	00.00 00 01 00.00 00 03 00 00 00 06 00 00 00 01 00 00 02 00 00 01 00 00 00 01 00 00 05 00 00 00 00

	. ₽	cord Data (con	t)(3 LUS Trailer	2
	Value Type	Value Len	Term.	Trailer	
	5	0	⇒ FF axogr	2 *** CR (28)	
ľ.	.05	00.00	FF 🐭	**************************************	

2.2.4.2 Reply Message (0x90)

This message is sent from a Managed Appliance to a Client in response to an Snmp Get Request message. It will contain the status of the request and the values for the OIDs if the request was successful

23	Field Name	Length	Description (see
	SOH	1	Start of Heading. Value = 0x01.
	Signature	.4	Unique Signature ID. Value = "AIDP".
ADER	Sequence Number	2	Unique packet sequence number. This number must match the sequence number of the Snmp Get Request message that this reply is for.
HE	Command ID	1	Unique code for the command contained in this message. Value = 0x90 (Snmp Get Reply command)
E.	Record Length	34 33	The total number of bytes in the Record Data field that follows.
RECORD DATA	*Required Fields	or rengui	Data Fields. See below for description of the specific fields. * Field ID 1 = Snmp Error Status Field * Field ID 2 = Snmp Get Response Error Index Field * Field ID 3 = Variable Binding Field
	Field Terminator		Terminates the record data Value = 0xFF.
TRAILER	CR	*1 2-1	End of message flag. Value = 0x0D.

The following describes the Variable Length Data Fields of an Snmp Get Reply Message (0x90):

SNMP Errror Status Field:

Name	Length	Description
Field ID	1	The SNMP Error Status Field ID: Value = 0x01.
Field Length	2	The length of the SNMP Error Status that follows. This value is sent in Network Byte Order.
Field Data	2	The SNMP Error Status. This value is sent in Network Byte Order. See the SNMP Error status codes below for possible values.

SNMP Error Status codes:

Error 2	Description
NOERROR	SNMP RFC1157 Error Status - No Error
TOOBIG	SNMP RFC1157 Error Status - Packet is too big
NOSUCHNAME	SNMP RFC1157 Error Status - No Such Name
BADVALUE	SNMP RFC1157 Error Status - Bad Value
READONLY	SNMP RFC1157 Error Status - Read Only
GENERR	SNMP/RFC1157 Error Status = General Error
INVALID_REQUEST	An invalid request was sent to the appliance.
APPLIANCE_ERROR	The appliance was unable to process the request due to an internal error. (For example: Out of memory, Not enough resources).

Please refer to section 2.2.6 Status Codes for a list of the status code values.

SNMP GetResponse Errror Index Field:

Name	Length	Description
Field ID	1	The SNMP GetResponse Error Index Field ID. Value = 0x02.
Field Length	2	The length of the SNMP GetResponse Error Index that follows. This value is sent in Network Byte Order.
Field Data	2	The SNMP GetResponse Error Index. See RFC 1157. This value is sent in Network Byte Order. This value should be 0x0000 if the value for the SNMP Error Status Field is NOERROR, INVALID_REQUEST, or APPLIANCE_ERROR.

Variable Binding Field:

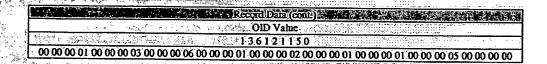
In an Snmp Get Reply message the variable binding contains the OID that was contained in the corresponding Snmp Get Request message as well as the value for the OID. Please refer to section 2.1.2.2 Variable Binding Fields to see how Variable Bindings are encoded

		Rime	jranaty.	Description 13
Fie	eld I	D.,	1	The Variable Binding Field ID. Value = 0x03.
Fie	eld L	ength	2	The total number of bytes in the Variable Binding Field that follows. This value is sent in Network Byte Order.
	Get	OID Type	11	Type indicating this is an OID. Value = 0x06 (ASN_OBJECTIDENTIFIER).
ata 💸)ID to	OID Len	2.	The length of the OID to get. This value is sent in Network Byte Order.
Da	J	OD ***	8-n ⊗	The OID to get the value for.
Field D	1	Value Type	1	Value type for the OID requested.
) jo a	Válue Len	2	Length of the Value. This value is sent in Network Byte Order.
	Valu	Value	0-n :	The value for the OID requested.

Note: There may be multiple Variable Binding Fields in an Snmp Get Reply Message. There should be one for every Variable Binding that was requested in the Snmp Get Request Message.

The following is an example of an Snmp Get Reply Message (0x90) that would be returned in response to an Snmp Get Request for the MIB-II sysName OID (1.3.6.1.2.1.1.5):

S., O. C.		Header 5			(C) 1549		Mark R	cord Da	ía v s	Sale La	* e 14
SOH	Sig.	SEQ*	E E	Rec. Len	Samp Error D	Samp Error Len	Snmp Error	Var Bind ID	Var Bind Len	OID Type	OID Len
1	"ASMP"	1	144	69 🕮		地子2:1100		%3	60	. 6	36
≉01	41 53 4D 50	00 01	90	00 00 00 45	∵ 01 🖦	₹00 02 ∰	00,00	₹03 ™	300 3C	06	00 24



04	00 12	4D 41 4E 41 47 45 44 5F 41 50 50 4C 49 41 4E 43 45 31	FF	00
4	18	"MANAGED_APPLIANCEI"	`FF	CR
Value Type	Value: Len	Value	Term.	Trailer
		Recalibrations)	经基準	Trailer se
		The first that was the same to be the state of the same and the same of the sa	er er egy vaga se t	94.:: ()

2.2.5 Snmp Get Next

2.2.5.1 Request Message (0x11)

This message is sent from a Client to a Managed Appliance to retrieve the value for the next OID that is specified in a variable binding from the managed appliance.

	Field Name	Length	La Sci al Sa & Description ()
13%	SOH	****1	Start of Heading. Value = 0x01.
1 2	Signature:	4.	Unique Signature ID. Value = "AIDP".
4DER	Sequence Number	% 2	Unique packet sequence number.
HEA	Command ID	1.	Unique code for the command contained in this message. Value = 0x11 (Snmp Get Next Request command)
3	Record Length	-4	The total number of bytes in the Record Data field that follows.
CORD DATA	* Required Fields	ole Length)	Data Fields. See below for description of the specific fields. * Field ID 1 = Variable Binding Field
RE	Field Terminator	18	Terminates the record data Value = 0xFF.
TRAILER	CR		End of message flag • Value ≡ 0x0D.

The following describes the Variable Length Data Fields of an Snmp Get Next Request Message (0x11). The variable binding contains the OID that the client wants to get the next value for from the appliance. Please refer to section 2.1.2.2 Variable Binding Fields to see how Variable Bindings are encoded.

Variable Binding Field:

		Name :	Length	Description
Fie	eld I	D.	1	The Variable Binding Field ID. Value = 0x01.
Fie	eld L	ength 🐍 😮	2	The total number of bytes in the Variable Binding Field that follows. This value is sent in Network Byte Order.
	Next	OID Type	l	Type indicating this is an OID: Value = 0x06 (ASN_OBJECTIDENTIFIER).
î 28	D to Get	OID Len	.2	The length of the OID to get next. This value is sent in Network Byte Order.
ata	Io	OID.	8-n .	The OID to get the next value for.
Pield D	D.	Value Type	1%	The type of the Value. Should always be set to 0x05 (ASN_NULL) for an Snmp Get Next Request Message.
	lue of OI	Value Len	2	Length of the Value. Should always be set to 0x0000 for an Snmp Get Next Request Message. This value is sent in Network Byte Order.
	₩	Value :	0	Value for the OID. Should never be a value for this field in an Snmp Get Next Request Message.

Note: There may be multiple Variable Binding Fields in an Snmp Get Next Request Message.

Note: When using the AIDP protocol only certain OIDs may be retrieved from the appliance. The OIDs defined in the enterprise MIB that are marked with "Discover" in the AVAILABILITY keyword may be retrieved. In addition to these specific enterprise MIB OIDs, the MIB-II OIDs sysName and sysObjectID can be retrieved from the appliance. No other OIDs are accessible through the AIDP protocol. Please refer to the managed appliance's enterprise MIB for which OIDs are marked with the "Discover" value.

Upon receipt of the Snmp Get Next Request Message, the managed appliance will get the values for the next OIDs specified in the variable binding values. It will then generate an Snmp Get Next Reply message to the client. The message will contain the status of the request and the values for the next OIDs if the request was successful

The following is an example of an Snmp Get Next Request Message (0x11) for the MIB-II sysName OID (13.6.1.2.1.1.5):

ä	OR WHITE THE			N 14.0000	many distance bearing a site is a	met framen.com printre de son m	ALL SALLING DATE TO BE DESCRIBED.	-W-1154-1111-11	
	N. 10.3 E	e (Carana)	Header 🙎	ALAX.		1.0	Record	Data CALEN	
	SOH	Sig	SEQ	Cmd ID	Rec. Len	Variable Binding ID	** Variable *** Rinding I en	OID Type	OID Len
Ì		* ASMP	·	-317 ∞	46	AUTHOR LANGE TO SEE	11 542 Miles	AMERICA CONTRACTOR	
	01	41,53 4D 50	.00.01∜ ⅓	(11)	♦ 00 00 00 	() (01/m) (°	00 2A *****	06	00.24

1	
	Record Data (Cont.)
	OID Value
4	136121150
ď,	00 00 00 01 00 00 00 00 00 00 00 00 00 0
1	00,00 00,01 00 00 03 00 00 00 06 00 00 00 01 00 00 02 00 00 00 01 00 00 01 00 00 05 00 00 05 00 00 00
-32	Control of the Contro

3	* Reco	d Data (cont.) 🖛	7 ×	A Carle 15	Control 1
	Value Type	Value Len 🦏	"Term.	Trailer *****	Section of
	<u>`</u> ≋`* ` 5	~~~ ZO (*****)	₩FF 🖎	CR/	-
٤	**************************************	00 00	● FF : ⊗	* OD:	3

2.2.5.2 Reply Message (0x91)

This message is sent from a Managed Appliance to a Client in response to an Snmp Get Next Request message. It will contain the status of the request and the values for the next OIDs if the request was successful

1000	Kara-Yawa (Kara	lees a source	
102	Loon	el ength	a Description
	SOH	1 *	Start of Heading Value = 0x01
	Signature ***	4	Unique Signature ID. Value = "AIDP".
ADER	Sequence Number	2 🏬	Unique packet sequence number. This number must match the sequence number of the Snmp Get Next Request message that this reply is for.
田田	Command ID	1.0	Unique code for the command contained in this message.
			Value = 0x91 (Snmp Get Next Reply command)
	Record Length	4	The total number of bytes in the Record Data field that follows.
RECORD DATA	* Required Fields	le Length I	Data Fields. See below for description of the specific fields. * Field ID 1 = Snmp Error Status Field * Field ID 2 = Snmp Get Response Error Index Field * Field ID 3 = Variable Binding Field
•	Field Terminator		Terminates the record data. Value = 0xFF.
TRAILER	CR		End of message flag. Value = 0x0D.

The following describes the Variable Length Data Fields of an Sninp Get Next Reply Message (0x91):

SNMP Errror Status Field:

€ 1			20.7728 Z. 215 27.5 2 25.52m. 2790 diversity and resident
	Name	Length	Description (
	Field ID	1 %	The SNMP Error Status Field ID: Value = 0x01:
Spens	Field Length	.2	The length of the SNMP Error Status that follows. This value is sent in Network Byte Order.
25-000 F 1 1 1 1 1 1 1 1 1	Field Data	2 R	The SNMP Error Status. This value is sent in Network Byte Order. See the SNMP Error status codes below for possible values.

SNMP Error Status codes:

Error 200 Care 200	Description 2
NOERROR	SNMP RFC1157 Error Status - No Error
TOOBIG	SNMP RFC1157 Error Status - Packet is too big
NOSUCHNAME	SNMP RFC1157 Error Status No Such Name
BADVALUE	SNMP RFC1157 Error Status - Bad Value
READONLY	SNMP RFC1157 Error Status - Read Only
GENERR	SNMP RFC1157 Error Status = General Error
INVALID_REQUEST	An invalid request was sent to the appliance.
APPLIANCE_ERROR	The appliance was unable to process the request due to an internal error. (For example: Out of memory, Not enough resources).

Please refer to section 2.2.6 Status Codes for a list of the status code values.

SNMP GetResponse Errror Index Field:

Name	length	Description
Field ID:	1	The SNMP GetResponse Error Index Field ID. Value = 0x02.
Field Length	2	The length of the SNMP GetResponse Error Index that follows. This value is sent in Network Byte Order.
Field Data	2	The SNMP GetResponse Error Index. See RFC 1157. This value is sent in Network Byte Order. This value should be 0x0000 if the value for the SNMP Error Status Field is NOERROR. INVALID_REQUEST, or APPLIANCE_ERROR.

Variable Binding Field:

In an Snmp Get Next Reply message the variable binding contains the next OID for the one that was contained in the corresponding Snmp Get Next Request as well as the value for the next OID. Please refer to section 2.1.2.2 Variable Binding Fields to see how Variable Bindings are encoded

	Natire :	Length	Description and the second sec		
Field ID		1	The Variable Binding Field D. Value ≡ 0x03.		
Field Length		2	The total number of bytes in the Variable Binding Field that follows: This value is sent in Network Byte Order.		
Next OID	OID Type	1	Type indicating this is an OID. Value = 0x06 (ASN_OBJECTIDENTIFIER).		
	OID Len	2.	The length of the next OID. This value is sent in Network Byte Order.		
	OD.	8-n	The next OID:		
Value of Next OID	Value Type	1	Value type for the next OID requested.		
	Value Len	2	Length of the Value. This value is sent in Network Byte Order.		
	Válue	0-n	The value for the next OID requested.		
	alue of Next OID Next OID E	OID Type OID Len OID Value Type Value Len Value Value	Id ID 1 Id Length 2 OID Type 1 OID Len 2 OID Len 2 Value Type 1. Value Len 2 Value Con 2 Value Con 3		

Note: There may be multiple Variable Binding Fields in an Snmp Get Next Reply Message. There should be one for every Variable Binding that was requested in the Snmp Get Next Request Message.

The following is an example of an Snmp Get Next Reply Message (0x91) that would be returned in response to an Snmp Get Next Request for the MIB-II sysName OID (1.3.6.1.2.1.1.5):

87.36	1000	Header		200,553	191 w .	Ah Le Reco	rd Data	4.34	
SOH	Sig.	SEQ Ci	nd Rec.Len D	Samp Error	Samp Error	Snmp \\ Error B	Var Var	OID	OID
	#ASMP	1112	15 / 64 :::	*D	ČLen €	. 0	ID Len		26
₹014	41.53 4D 50	00 01 ₹ ₹9	1 3 00 00 00 40	201	00 02	00 00 2	03 00.37	106	00.24

	上下,我们也是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个
_ [Record Data (cont)
\$L	OD Value
	136121160
ŀÆ	00 00 00 01 00 00 00 03 00 00 00 06 00 00 00 01 00 00 00 02 00 00 01 00 00 00 01 00 00 00 06 00 00 00 00 00

SA:345:32	i e	2001 Recond Data (comb): 1000		sa Trailer Su
Value Type	Value Len	Value	Terin.	Trailer
-4	13	"ENG_BUILDING!"	FF	CR
04	00 0D	45 4E 47 5F 42 55 49 4C 44 49 4E 47 31	FF	0D

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2.2.6 Status Codes

Below is a list of all the status codes that exist for the AIDP protocol. To see the status codes that can be returned by a specific AIDP message, please refer to the Commands section.

Status Code	Drof V	Description was a way or war
0x0000	NOERROR	SNMP RFC1157 Error Status - No Error
0x0001	TOOBIG	SNMP RFC1157 Error Status - Packet is too big
0x0002	NOSUCHNAME	SNMP RFC1157 Error Status - No Such
0x0003	BADVALUE	SNMP RFC1157 Error Status - Bad Value
0x0004	READONLY	SNMP RFC1157 Error Status - Read Only
0x0005	GENERR	SNMP RFC1157 Error Status - General Error
0x0006	INVALID_REQUEST	An invalid request was sent to the appliance.
0x0007	APPLIANCE_ERROR	The appliance was unable to process the request due to an internal error. (For example: Out of memory, Not enough resources).
0x0008	IP_ADDRESS_ALREADY_EXISTS **	The appliance already has an IP address.

3. APPROVAL

This Protocol Specification requires the approval of each of the individuals listed below. By signing below, each member acknowledges that they understand and agree with the design documented herein and presented in a Design Review.

S/W Technical Lead

Design Team Member

Date

Design Team Member

Date

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